THE

SOUTHERN AGRICULTURIST.

NOVEMBER, 1828.

PART I.

ORIGINAL CORRESPONDENCE.

ART. I.—*On the Culture, Gathering and Dying of the Indigo Plant, and the Manufacture of Indigo; by the* MARQUIS DE FOUGERE.

[TRANSLATED FROM THE FRENCH.]

THE gentlemen in South-Carolina being perfectly well acquainted with the Culture of Indigo and the choice of seeds and soil, it is deemed unnecessary to translate that part of the author's instructions which relate to these objects.

Gathering of Leaves.—The proper time for cutting the plants, may be known by various signs which are more or less certain; it will always be known when the plants have arrived at perfect maturity and contain the greatest quantity and best quality of fecula which they can produce, when the greater part are in full blossom, and the seeds begin to appear.

The branches of the plant must be cut at about one inch from the stalk, with pruning knives, or any other sharp instrument. When, after some time, the principal branches will have become stouter, it will be well to leave them and only to cut the secondary ones, in the way abovementioned.

This relates only to the Indigo plant of Senegal; if the Bengal plant be cultivated, it will be necessary to cut (with sickles) the whole plant at four or five inches from the earth, leaving on the stalk the inferior part of the first branches.

The leaves must never be torn from the branches; for they would no longer be susceptible of being properly dried for the manufacture of Indigo.

The cutting should never begin, but five or six days after a rain and in a day of warm weather, so that the leaves may, in one day, acquire such a degree of dryness as will permit them to be kept in a heap without fermenting until the next day.

As the leaves which have been cut at sunset, can pass the night without alteration, they may be gathered from five o'clock until night, and the work may be resumed in the morning and continued until half past eight o'clock only. It will be easily perceived, that in cases of emergency, the work may last all night. In all cases, the plants must be transported in bundles to the dryers and there immediately opened. They should be *compressed together during as little time as possible;* one hour being often sufficient to create heat, blacken them, and deteriorate the fecula which they contain.

The dryers generally consist of an area of flat brick work, covered with cement and surrounded by a wall two feet high. In dry weather, when it has not rained for a long time, and the soil is perfectly dry, any spot will answer for this purpose; but care must be taken not to use a damp place, which would destroy the crop.

Dryers may be formed at once, which will unite all the requisites favorable to the prompt and complete drying of the leaves, by placing all their surfaces in contact with a current of air, and by permitting them to receive the reflection of heat from the soil, which, by its nature, can throw out a great quantity. These dryers consist of a number of poles placed horizontally and equally distant, and supported by forked stakes, driven into the soil, which should be covered with very dry white sand. The dryers must be located on an open spot, distant from any pond, river or trees, and to windward of any cause which might produce dampness.

Whatever way be the mode employed to dry the leaves, the branches must be exposed to the rays of the sun at eight o'clock at farthest, one separated from the other, and never in a heap. At mid-day they should be turned over, (when the air is very dry, the second kind of dryers, of which we have spoken, will avoid this trouble.) At half

past four, all that has been dried during the day, must be united in heaps and beaten with rods, in order to detach the leaves from the branches; the latter should be set apart. The leaves must then be collected with brooms (a few of the branches tied together will answer this purpose) and transported to a dry place. It will be well to cover them with mats or sail cloth, without any compression. However, should they not be perfectly dry, it will be more advantageous to open them on the floor of a dry store-house, and lay them in strata of three or four inches, turning them over during the night, in order to prevent the generation of heat. *This accident, which may lead to the total loss of the crop, must be studiously avoided.*

[*Here follow remarks which do not apply to South-Carolina.*]

The heat of the sun during one day will not always be sufficient to dry the leaves properly; the operation must be recommenced on the day following at nine o'clock, laying the leaves two inches thick, turning them over at times with rakes or wooden shovels, at three or four o'clock, (never later, in order to prevent the absorption of any moisture from the evening air,) fan them, in order to separate the seeds and small sticks, heap them in a dry stack-house, whose floor should be boarded, then they should be strongly compressed and covered with mats; in fine, every precaution should be taken to preserve them from dampness, and, above all, from rain.

The leaves of Indigo are known to be perfectly dry when they preserve a perfect unstained green colour, somewhat paler than that of the fresh leaf; when they can be easily reduced to powder by crumbling them between the fingers; (when kept for some time, they lose, without any injury, a part of this quality, but they should never be stored without it;) when they have the smell of dried clover, *(Lucerne)* and are free from *brown* or *blue* spots. In the latter state they would yield little Indigo, and it would be impossible to extract any from leaves in which either of these colours should be predominant.

When the Indigo leaves have been carefully dried, and possess all the requisite qualities, they may be preserved without alteration during two months, in a dry store, and may even be transported in bags. They should, however,

be visited at times, and should they present any appearance of dampness or blackness, it will be prudent to expose them to the sun on a dry day, and to manufacture them as soon as possible.

Manufacture of Indigo.—The difficulties which attend the dessication of leaves, vanish in dry seasons. The care which we bestow by this method is amply compensated by the facility with which Indigo is manufactured from the dry leaves: an operation which formerly required much experience and many days of labour, is now performed in less than twelve hours, by an intelligent person who has witnessed it once. There are no particular phenomena to be observed, and the fermentation of twenty or thirty hours, during which, one was exposed to lose his crop, or deteriorate the quality of it, *is now reduced to a simple infusion of two hours.* It is the watch that now guides the series of operations which lead to the extraction of Indigo, during which time, the workmen are no longer exposed to unhealthy effuvia, especially when the workshops are kept clean.

I shall briefly describe the method of manufacturing Indigo on a small scale, and in such a manner that the smallest planters may execute it themselves at little expense, and without other utensils than those commonly required in a family.

Workshop.—The workshop will consist of

1. A log-house twenty feet long and twelve or fifteen feet broad, with a door in the centre.
2. Nine empty claret casks.
3. Two tubs, made from a wine cask, sawed in two.
4. Two churn-staffs, made with a piece of board nine or ten inches square, and a handle fastened perpendicularly in the centre, and two spatulas, or paddles of wood.
5. Four wooden frames, fifteen inches square, covered with coarse cotton cloth.
6. Six calabashes of different sizes.
7. A large kettle, capable of containing twenty gallons.
8. A skimmer with a long iron handle.
9. Three or four boxes, a foot square, and six inches deep, with moveable tops and bottoms, perforated with small holes (1-10th of an inch in diameter,) on all their surfaces.

10. Three or four pieces of coarse cotton cloth, eighteen inches square.

11. A few blocks of wood, ten inches square and six inches thick.

12. A long and stout pole, for a lever to press the Indigo.

13. A few mats.

Remarks on No. 2.—The casks must be set upright, and one of the heads of each must be taken out. The diameter of four of these heads must be diminished by one inch. Eight of the casks must be perforated through one of the staves at the bottom, with a hole of three quarters of an inch in diameter, and four of these will moreover be perforated with a hole half an inch in diameter, and four inches higher than the others. The casks should be of the best kind, properly cleaned and fitted with strong iron hoops. The four casks which have but one hole, are designed for steeping the leaves, and may be called *Steepers*. The other four, which are perforated with two holes, may be called *Receivers*. The union of one *Steeper* and one *Receiver*, is called a *Set*. The ninth cask will contain lime water, and is called the *Lime Cask*.

No. 3.—The two tubs must be scraped in order to remove all the tarter and colour of wine lees, with which this wood is always impregnated; they moreover should be strengthened with iron hoops. They are destined to receive the settlings of the *Receivers*, and to support the filters, No. 5.

No. 5.—These frames may be made with any sort of wood, provided they be strong. Covered with cloth, they are used as filters to drain the Indigo.

No. 13—The straw mats are used to dry the Indigo, and to supply the place of a drying house. They may be suspended on poles, supported by stakes driven into the ground.

Location of the workshop.—The workshop should be located as near as possible to water; whether a river or well. The water may be either sweet or salt, but as a portion of the former is always necessary for boiling and washing the Indigo, it will be better to use it entirely. Indeed, the operation of washing may be dispensed with, when sweet water

has been employed in *Steeping* the leaves. The limpidness of the water conduces in a great measures to the beauty of the product.

The Steepers should be so elevated, that in withdrawing the stoppers, the water may run into the *Receivers.*

Manufacture.—When a sufficient quantity of dried leaves have been collected, nothing can be more easy than the extraction of Indigo. The operation is reduced to this—first, forty-four gallons of water in one of the steepers, (it will then be three-fourths full,*) add thirty-five pounds of dried leaves, (they must be fanned when they have been kept more than a fortnight) steep the leaves well, agitating them by means of the churn-staff, (No. 4); renew this agitation twice during the two hours which the infusion or steeping must last; place, after two hours steeping, a filter, (No. 5,) on the *Receiver*, draw out the plug from the *Steeper*, (the small portion of leaves which may come out will be retained in the filler,) and the clear liquor will fall into the receiver; when the liquor, which must be green, will no longer flow, add, at different times to the leaves in the steeper, fifteen or twenty quarts of water; place, on the leaves in the steeper, the head of the cask, and let them be compressed† so as to give out the last portion of liquid which they may contain; compress with the hands the few leaves which may remain on the filter. The latter part of these operations will only require five minutes.

We must now proceed to the beating of the liquid, which is performed by moving the churn-staffs up and down.‡ (During this operation, which lasts three-fourths or one half hour, according to the quantity, the scum passes successively through different shades of blue, until it arrives at that of *Persian Blue.* When it has attained this colour, it passes gradually to that of a light blueish grey. As soon as this tint appears, the beating must be discontinued; generally there appears a slight excess of beating. It is known to be terminated, when on putting a small portion of the liquid into a glass, there appears small grains, which

* The French wine casks contain about sixty gallons.

† The weight of a man on the leaves will be sufficient; a greater weight might injure the quality of the Indigo.

‡ As in the act of churning butter.

are detached and precipated by the addition of a few drops of lime water, leaving the liquid in which they swim, clear and of a dark yellow colour.) In operating quickly on small quantities, the beating may be generally considered as terminated in three-fourths of an hour. At this time, ten or twelve quarts of lime water must be added, and slightly agitated, to mix the liquids, then allow the whole to settle.

The lime water is prepared by throwing four or five pounds of good lime in a cask of water, agitating for a few minutes and allowing it to settle. It should always be prepared before hand, and employed in a pefectly limpid state. It is drawn from the casks by means of the stopper.

In half an hour after the beating has terminated, the Indigo is generally deposited at the bottom of the *Receiver*. The upper hole must then be opened, in order to allow the *mother water* to escape; the Indigo which is found at the bottom in a liquid state, must be placed on a filter to drain it. In the mean time the copper boiler must be filled two-thirds with water, and fire applied; the Indigo in paste must be mixed in a calabash, with a small quantity of boiling water, and when it no longer presents any lumps, it must be thrown into the boiler, after straining through a piece of coarse canvass. The ebullition of the water is of course stopped by this addition, but it soon recommences, and must be checked twice by the addition of cold water. The flakes which may float must be carefully removed with the skimmer; the boiler must then be filled with cold water, and the fire withdrawn. The whole must be allowed to settle. The limpid water is drawn off from the Indigo, and the latter drained on a filter. Should the first draining of water carry along any Indigo, it must be again filtered.

When the Indigo is sufficiently drained, that is to say, when no more water escapes from it, and it has arrived at the consistence of a thick paste, and begins to split and separate from the filter, it is to be removed with a spatula into a calabash, and there agitated, in order to give it a uniform consistence. A wet cloth, (No. 10,) must then be applied to the boxes, (No. 9,) and so carefully spread as to produce no plaits or folds. The Indigo must then be put in the boxes, and covered over with the edges of the cloth. The cover of the box must then be fitted, one of the blocks, (No. 11,) applied over it, and the whole pressed gradually.

When the water ceases to flow by this compression, the cover is removed, and the loaf of Indigo is allowed to remain an hour in the box, in order to dry the cloth. With this precaution the loaf is easily removed. It must then be divided in equal squares, with a knife or wire, as is used in soap making. They must then be dried on the mats, (No. 13.) This last operation must not be performed too hastily; the Indigo must be screened from a draft of air, which would cause it too split. Ten days are generally required to dry the loaves, and they should be frequently turned over during this time. The Indigo is sometimes covered with efflorescences, which should be removed by means of a brush or rags; this friction gives it a copper cast, and is called *dressing*.

ART. II.—*On the Culture of Sugar and Indigo, by* T. SPALDING, *Esq. of Georgia.*

"Sapello, (Geo.) Aug. 1828.

Herewith you will receive some memoranda, made by myself, upon a Sugar plantation in Louisiana of fair repute, in the spring of 1825. It gave two hundred and eighty thousand weight of Sugar, from three hundred acres, laboured by from seventy-one to seventy-three persons, mostly men, say fifty of them. The Mill, a six horse power Steam Engine, high pressure, a double set of copper kettles, for fear of accident to a single set.

The crop was at least an average one. It gave four thousand weight of sugar to the hand; you may rest assured that this was more than an average crop for Louisiana, in any of its districts; and would be about $250 to the hand, but we must remark that the capital invested in land, and the machinery, was estimated at about $60,000; five hundred acres of sugar land, with a portion of morass which gave timber for plantation purposes and fuel.

Mr. Williams, whose estate is about twenty-five miles below New-Orleans, on the river, and who is respected in that country as a distinguished planter, and highly informed gentleman, stated to me, that he considered six thousand weight of Sugar might be made in a favourable season to

the land. Mr. Williams' crop would be from four to five hundred thousand, but his lands were fresh, reclaimed by himself, and possibly would be valued at 80 or $100,000.

Col. Procter, formerly of South-Carolina, has been perhaps the most successful planter in Louisiana. His lands are quite fresh, situated between two lakes, thirty miles below New-Orleans, which tempers the climate more than upon any other estate I saw in that country. He has made two thousand weight to the acre, which is as much again as the old lands produce annually. But Colonel Proctor plants short to the hand, and would not exceed Mr. Williams estimate, of six thousand weight, probably four hundred dollars; but this four hundred dollars is purchased by great labour, by great expenditure upon land, and upon machinery, and could not possibly be reached by any person upon a small scale, without much expenditure.—Col. Proctor has a million of bricks in his sugar works, and a twelve-horse steam engine, for expressing his cane. I give you these details in order to put down the extravagent reports which are circulated by transient visitors from the west, than which nothing can be more injurious to the real agriculturist. His expectations are excited to an extravagant degree, feverish inclinations are generated in his mind to flee to this land of promise; the reality is widely different. Of all that have gone, (and I know many of them) two out of three have been totally ruined.

Sugar may be cultivated from Charleston to St. Mary's, with reasonable expectation of a moderate result. The winter of Charleston, is as mild, at least, as the winter of New-Orleans. The alluvions of our tide rivers can be drained as deep as the alluvions of the Mississippi, which are an inclined plain at the river, eight feet above the morass water, but ending about a mile back at nothing. Thus, generally, the mean height of their fields above the water, is four feet; this elevation our river lands have, but they have this elevation more conveniently distributed; because equal, instead of being eight feet at one end of the field, and on a level with the water at the other.

The ribbon cane which is so much talked of, Louisiana owes to the late Mr. John McQueen, of Savannah; he brought it from Jamaica, and distributed it among his friends in Georgia, from whence it has been carried, within

four years, to Louisiana. With steam mills to express the juice, it is certainly the best cane, but animal power is not sufficient for a radical expression of its juice, as I have proved to my great loss these ten years past.

I think you should procure from some of the elder planters, a carefully prepared paper on Indigo. My father cultivated Indigo until I was sixteen; my memory is far from furnishing me with any evidence of its being an unhealthy culture; it generates flies, but not more than a livery stable, or a manure pen. I have questioned, upon the subject of the quantity to be expected to the hand, our two last Indigo planters, both gentlemen of intelligence, of character, and of truth; they say a set of Indigo works that cost $120, would work off thirty acres of Indigo; would require to attend eight good hands, or ten ordinary ones; would give in a bad year, one hundred pounds of Indigo; in a moderate year, one thousand five hundred; in a year of great crop, two thousand pounds. The house of Davidson & Simpson, of London, have twice written me, that the copper Indigo, which was formerly produced in Georgia, would command now in London, from 7*s.* to 7*s.* 6*d.* per pound. Take the negroes at the highest, say at ten, take the medium crop, one thousand five hundred; this gives one hundred and fifty pounds of Indigo to the hand, which, at 7*s.* would be $225. What could be more profitable?

As to our enemies at the north, the woollen's men, they would not buy our Indigo for years; their prejudices are too deeply fortified, and I rejoice at it, for I trust in God, there does not live a man in either state, that would directly or indirectly willingly receive one cent from a Tariff, whose only support before Congress, was in the *simplicity* of corruption, bargain, and sale.

A Mr. Gray, who had, before the Revolutionary war, been the manager of an Indigo plantation, for Mr. John Bowman, on Skidaway Island, near Savannah, and who was discharged for his violent political opinions, was patronized by Governor Wright, and sent to England, and from thence to Bengal, for the purpose of introducing the American mode of manufacturing Indigo; that is, by large steepers and beaters.

As far as I can see, the Bengal Indigo, manufactured in our American manner, owes its superiority to two circumstances: settling the water of the Ganges in large tanks be-

fore it is used for steeping, and from passing the mud, or colouring matter of the Indigo, from the beaters, after it has subsided, into copper boilers, where it is allowed to simmer for twelve hours, or until all the watery particles are dispersed, before it is put into the press. This prevents vegetable fermentation, and gives solidity and firmness to the Indigo, and perhaps a more uniform colour. But both these improvements might be adopted with great ease, and at trifling expense.

I remain, dear Sir, with esteem, &c.

T. SPALDING.

ART. III.—*On the Culture of Sugar, by* EWD. BARNWELL.

Beaufort, Sept. 18th, 1828.

Dear Sir,—Several encouraging statements in the Gazettes of this State and Georgia, and one particularly so in your Agricultural number for April, having attracted the attention of a few planters of this neighbourhood, to the culture of the Sugar cane, a short excursion, as far as the Turtle River, in Georgia, was thought the best means of ascertaining the probability of cultivating this article with success in this State. With the hope that a few days personal observations would be worth more than months of lettered commutions, or perhaps years' of experiments, a visit was made by myself to several of the Sugar establishments at the southward, during the first half of the month of May, and the observations resulting therefrom, I now forward for such purpose as you may think proper.

One plantation upon Hutchinson's Island, opposite the city of Savannah, and subjected by purchase of that city, to dry culture, had only a few acres of ribband cane, growing solely for the purpose of furnishing seed for ensuing years. The proprietor ceased an extensive culture here, in consequence of failures, which, he has it in his power now, and intends to guard against in future.

Five plantations, on the Altamaha, were tide lands, under bank, and grew the ribband and Otaheite, or common green cane.

One, on common high land, a few miles from Darien, grew the same.

One, upon a branch of the Turtle River, upon high inland swamp, grew only the ribband. But one upon Sapelo Island grew three kinds, the green, the ribbaud, and a rare species called the yellow ribband. No decided preference has yet been determined upon by the planters, as to these different species, from the following peculiarities attached to them. The juice of the cane is well known to contain water, mucilaginous gum, a gross, an essential oil, and Sugar, and yields these ingredients in proportion to the richness of the juice, and this depends much upon the dryness and richness of the soil in which it is cultivated. The great difficulty in manufacturing sweet, bright sugar, is to get rid of the water, gum and oils very quickly, as well as effectually.

The green cane yields the greatest product of Sugar, is not very hard to grind, stands the frosts better than the yellow ribband, and ripens at the same time. But the Sugar is not very bright, sweet, or dry, in consequence of the juice being poorer, the water, gum and oils more abundant, and more difficult to evaporate and extract. It also consumes a greater quantity of fuel, requires a longer time to boil, and thereby increases considerably the risk of burning or discolouring the Sugar. The Sugar produced by this cane requires a summer to drain it free of its molasses; besides, the foregoing objections, has induced two of the planters upon tide lands to boil only syrup.

The yellow ribband yields very beautiful dry and abundant sugar, is the sweetest cane, and is easily ground. But it is very delicate, and does not bear the frosts well. This species is not yet thoroughly tried, and only twenty acres are cultivated on the high lands of Sapelo Island.

The ribband (so called from having purple streaks, somewhat similar to the stalks of the Guinea Corn) yields less Sugar and is very difficult to grind; but the juice is very rich, and sweet, bright Sugar more easily obtained, as there is more saccharine and less aqueous, mucilaginous, and oleaginous particles than in the other two species. It also ripens earlier, and bears the frosts better; my own opinion is in favour of this cane, and I think the Georgians, and the planters of the more southern latitudes will in time prefer it also. One of the Altamaha planters has a crop of seed suf-

ficient to plant 500 acres the next year, and has sent for a steam power to express the juice effectually from the cane. If appears to be the opinion of most, if not all, the gentlemen I conversed with upon the subject, that when cultivated as a large crop, the power of steam would be required for this essential purpose. Tide mills are uncertain, and animals are liable to various accidents, are expensive, and often too weak. For, when the crop is ripe, every exertion must be made to expedite its manufacture, and no delay for wan of water or animals must be experienced. The cylinders to the mills in general were perpendicular; two that I saw were horizontal. This latter position requiring bevel wheels demands more power, but as its evolution is accelerated, it yields a much greater quantity of juice in a given time. Three to six yoke of oxen are driven at a time, and changed as often as fatigued. Perhaps four times in fourteen hours. One or two of the establishments had copper boilers, but iron have been found equally good and less expensive. Hot and cold clarifiers were used, and in some instances they were dispensed with entirely. Two of the mills had live oak cylinders, the other cast iron. One mill tried two cylinders in a horizontal position, but it proved inadequate to the complete expression of the juice, although the cane was passed twice through. The tide lands flow their canals, and the cane is carried to the mill in long narrow flats; upon high ground it is carted; and to manufacture an acre of cane per day, not less than twenty or twenty-five hands would answer.

The culture of Cane in precisely the same as of Corn. Planters upon high lands commence cutting their seed cane about the middle of October. That for seed, is by some pulled or hoed out, with the roots attached, and thrown into the alleys for two or three days, that the blades may wilt; the product of three or four rows are then put into one alley, and well covered with earth to protect the eyes of the cane from frosts. In January or February they are cut into pieces containing three or four eyes, and planted in a good list about three inches deep. The roots are sometimes separated and planted, and appeared to promise well; but they are not considered very sure. The mildness of the last season, perhaps favoured their present success.

On my return to my plantation, near Cossa river, in Prince William's Parish, where I have one-fourth of an acre

of the ribband cane growing, I found it on the 21st May as well grown as any seen at the south, but not so well shooted; this may be attributed to my planting as late as the 1st of March. The frosts which prevailed so generally, and so late as the 6th April, cut many of the shoots, which were a foot in height, to the ground, many half way, and many were not injured in the least, although they had the appearance of being white-washed, while the frost was upon them. This was precisely the case upon the tide lands, on the Altamaha. The opinion of several planters was, that it did not impoverish the soil, as the field trash from the cane is considerable. One square of many acres, upon tide land, was pointed out, which had been cultivated in cane for fourteen years, without any visible deficiency in its product.

The success in making a profitable crop, appears to depend much upon a wet season in the early part of the summer, and a dry one in the latter part. And, I have accompanied these desultory remarks with a statement I procured from the books of the late Agricultural Society, in Darien.

A Statement of Sugar Crops, at Butler's Island, (tide land,) for ten years.

	ACRES.	SUGAR:	MOLASSES.	LBS. SUGAR.
1815	80 wet	134 hhds.	80 hhds.	1675 lbs per acre.
1816	40	12½	8	312
1817	20 wet	28	25	1400
1818	100 dry	12	8	120
1819	35	29	24	828
1820	40½	11	8	270
1821	18	10½	8	583
1822	68	40	28	588
1823	54	35	21	549
1824	48½	50	30	861
	524	362 *a* 1000 glls.	240 hhds. *a* 100 glls.	

This statement gives an average of 961 lbs. of sugar, and 45 galls. Molasses per acre for ten years, which, at $8 for the Sugar, and $\frac{25}{100}$ for molasses, (both moderate calculations,) gives $55 28 for the Sugar, and $11 25 for the Molasses = $60 53 per acre, which is = 250 lbs. of cotton per acre, *a* $\frac{25}{100}$.

I omitted mentioning that it required at least one cord of wood (good dry pine, light wood if possible,) per acre. One of the planters upon tide land, who boils only syrup, makes 300 gallons per acre, and sells it in Savannah from 28 to 30 cents per gallon. I found they were not in the prac-

tice of burning the cane, as fuel, but no care was bestowed in stacking it for drying, and preparing it for the next year*; and in our wet winter months, it will not dry sufficiently to make an active flame, which appears peculiarly necessary for the quick boiling of the juice.

Should you feel disposed to make any further inquiries upon the subject of this communication, and I have it in my power, I will, with much pleasure, furnish the answers and remain, dear Sir, your's, very respectfully, &c.

EWD. BARNWELL.

Note, by the EDITOR.

As we conceive the publication of the information we possess on the cultivation of the Sugar cane, may be useful at this particular season, and may decide some who are now undetermined, in these times of difficulty, what crop they will plant next year, we lay before our readers two important letters, containing valuable information on the culture of Sugar. We must be permitted to make some observations on the subject generally.

The first is to remind those who intend to embark in this crop, or who having already begun, may wish to extend it still further, that the price of Sugar is kept up by a most oppressive tax on imported Sugar. We stated in a note attached to our article "*On our Southern Agricultural Concerns*," page 449, of our last number, that in 1823 and 1824, Sugars to the value of $406,116, first cost in the countries they came from, were imported into Charleston, on which the tax or duty at the custom house, was $564,-769=140 per cent!† We think it may be attended with disappointment if our readers do not keep this circumstance in mind, for if we carry our point, we mean in the great question, whether we are to live under the oppression of the Tariff or not, and get rid of that and *we* hope all tariffs, the

* In the West Indies they make use of no other fuel; one week's exposition to the air and sun is sufficient to make the stalks fit for fuel; when it is not quite dry they then use with it the dried blades packed in the field.

† The mercantile expenses, *in addition to the duty*, may be estimated at 3 cents per lb. on Sugars imported from the West Indies.

duty on Sugars ought of course to fall with the rest. It is evidently one of the most arbitrary and oppressive taxes ever ventured on by any free government.

The next observation we will make is, that we have never despaired of Cotton. We *know* that the consumption of this noble staple of the Southern States, has always equalled the growth, *in a state of fair unshackled trade.* We now consider it as *certain*, that it will continue to equal the growth—*more probably the demand* (to use a mercantile phrase) *would far exceed it, if our trade and commerce were left to regulate themselves.* Many of our readers are not aware that fifteen or twenty years ago, upland Cotton was occasionally a remittance at China, instead of silver dollars; that ships called at Charleston to take it in, on their way to Canton, to procure Teas, &c. for the northern merchants paid partly for these articles in China, by sending Carolina Cotton, whenever it fell to very low prices. *That* state of trade shewed that we could come in competition with the Chinese at their own door, in our great staple, and this at a time when we even received cotton cloths from India, for our own use and for that of our negroes. The supplies of cotton cloths from India and China, have gradually grown less, and will probably soon cease altogether, but we ourselves were not aware that the current of trade had begun to set the other way, and that very considerable supplies of English cotton manufactures are now sent out to India. But so it is, for we have seen it stated by the ministry in the English House of Commons, that twenty millions of yards of white, and ten millions of printed cotton cloths had been shipped from England to their East India possessions. If trade had not, therefore, been interfered with, by the *insane* acts of our own government, we were likely to have had what merchants call a *steady demand* for our cottons, followed by *higher* instead of lower prices. For when it is recollected that the introduction of cotton manufactures into Asia, is, in all probability, the prelude to the British supplying its myriads of indolent inhabitants, with cheaper cloth than they can make themselves, we must be satisfied that the *demand* for our cottons, which supply the British manufactures, would in that event, be far more than the increase of growth can be. Thirty millions of yards of cloth in a new branch of trade, never before noticed or spoken of, is not a speculative or imaginary ground

to go upon. In fact all we want in the south is a state of free trade—no tariffs—no duties on imports! so that we may buy wherever we can get our necessary supplies cheapest and best, and most abundantly, and then, and *then only!* shall we be able to stand a competition with the whole world in agriculture.

But it is principally to *the preparation of Sugar from the cane* that we intended to direct the attention of those interested in its cultivation, and we proceed to communicate some facts learnt from an intelligent friend, well versed in the culture and manufacture of this truly valuable crop. We were led to our inquiries from a belief, that our planters would find the process used by the Cuba Sugar planters, in making *their clayed Sugars*, not only convenient, but economical. But the French process we have heard of, appears so perfect, that without hesitation we hasten to lay before our readers all that we know of it, and earnestly call their decided attention to it.

The French, from the time of Bonaparte's continental system, have been unremitted in their endeavours to perfect the process of making Sugar from the Beet. In their first efforts they could only procure a thick syrup. For having the same difficulties to encounter as our southern planters, or perhaps greater, in the watery, earthy, and other substances contained in the syrup, they found that before they could get rid of them by boiling and skimming, the sugar was entirely skimmed away.

To obviate this difficulty the French chemists have been unceasing in their exertions, and they have succeeded so completely, that refined sugar, made from beet-sugar, is not only manufactured of equal quality to that from the sugar cane, but so cheap, and in such quantities, as to bring forward the West India proprietors in a body, as petitioners to the government, *to arrest this new trade.*

Their process of refining is, of course, adopted instead of skimming, and as the difficulty was to find cheap clarifying substances, which would bear transportation to a distance, and would keep for any length of time without spoiling, it was to obtain these that the studies of the chymists were directed.

In a heretofore useless residuum, left in a particular manufacture carried on in Paris to a great extent, one or both

of the substances required have been found, these are manufactured, and we believe cheaply—are for sale in France, and may easily be procured, at least for experiment.

We should therefore strongly recommend to such of our readers as are either already interested in the cultivation of Sugar, or have the intention to embark in it, to send on their own account, or to join in defraying the expense of procuring from France, a sufficient quantity of the *Novi Animal* and *Albumen*, which are the two ingredients wanting, with instructions for their application and use. Also, to send for a model or drawing of a French Sugar refining-house, with the boilers, and all other instruments and tools used in the process of making Sugar from the Beet, in France, on the newest and best principle. The expense of this would be from 50 to $100, perhaps a little more.

We are satisfied from the information given us, that this process will complete the manufacture of Sugar in the southern states, abridge labour, save much time, and lessen the expense of preparation, while the gain in its quantity and quality of the Sugar and Molasses will be very great.

With regard to the mode of crushing the cane, both oxen and tide-mills will, in our opinion, be found perfectly efficient. The Sugar cane is a very exhausting crop in the West Indies, there is no doubt that is the same here, but it furnishes more *material* to enrich the land, than any other. The necessity the West India planters have found to manure their cane fields highly, (unusually so) have compelled them to become the best farmers in the world in making manure—(see page 426.) The most effectual mode of making manure is by means of cattle, and as all our southern planters have already got them, the cheapest way of crushing the cane is to use oxen in getting out the crop.

We are satisfied that wind-mills will do the business most effectually, and on the coast, wind seldom, if ever, is wanting. Tide-mills have hitherto been considered as ruinous to the undertakers, but this has proceeded, we think, from mistaken policy in the mill-wrights, and certainly very much from want of exterprize and energy in our planters. On the salt water, low marsh, mud flats, and deep creeks, capable of holding a head of water, *which will work a mill through our very lowest neap tides*, can generally be found, and are frequently very easy to stop. The head of water once obtained, a tide-mill to crush canes would be a very sim-

ple machine; and when once built, the expense is at an end. Not so with steam engines. The working of these machines to advantage—*we say the working of them at all*, depends upon their being kept in a perfect state—in high order and repair. This is impossible when they are laid aside nine or ten months in the year unemployed. At the very time they would be wanted, they would be found entirely out of order; an engineer, with an extensive and expensive work-shop would be necessary, and with him would come endless expense and trouble.

Oxen, we believe, are therefore the best power to be depended upon, with the addition of well-contrived and simple machinery. If a superior must be had, then tide-mills. Where the run of tide is insufficient, we think wind will be found a good substitute, more particularly; as we think, also, that the wind-mill can be so contrived as to have a cattle power attached to it, to operate, when necessary, in calm weather.

ART. IV.—*Mortality amongst Cows.*

COMMUNICATED FOR THE SOUTHERN AGRICULTURIST.

Charleston, October, 1828.

Sir:—I am permitted to send you the following extract of a letter, written by Dr. Thos. Wells, of Columbia, (S. C.) It relates an interesting and curious fact, and if it should convey any information useful to the planter or farmer, your publication of it will no doubt gratify the writer, as well as

Your obed't. serv't.

SAM'L HENRY DICKSON.

"A very singular fatality happened among the Cows in the upper part of this town, about the middle of last June, which may not be entirely destitute of interest in a pathological point of view. I will, therefore, take the liberty to state the facts. A herd of Cows, twenty in number, after

receiving their domestic breakfast, on their way to their daily range, broke into a field of *Guinea Corn*, which stood at that time about eight inches high. In a few minutes they appeared to be in great pain, became slightly convulsed, fell down unable to rise again, and died soon after.—About an hour after they entered the field, I was passing that way, and went to see the sad spectacle. There were then nine dead, and nine more dying, lying on less than half an acre of ground. But two out of the twenty escaped; these were not long enough in the field to take more than a few bites, from which they suffered severely. They were not swollen, nor was there any particular discharge. The countenance, frequently lowing, and constant writhing of the body, indicated intense suffering.

"I had three of the bodies opened. The quantity of the green corn was very small, and lay in the cardiac portion of the first stomach. The mucous membrane, in contact with which the corn lay, was violently inflamed, and its attachment to the muscular coat so slight, that it adhered to the contents of one stomach when this viscus was slit open and folded back, leaving the muscular coat perfectly clean, and of a deep scarlet colour."

Note, by the EDITOR.

We are much indebted to Dr. Dickson, for communicating to us the interesting and extraordinary facts, received by him from Dr. Wells, of Columbia, and shall be obliged to any of our other friends who will give us such further particulars as may lead to a discovery of the cause of this fatality.

The disorder could not have been what is termed "*Hoven*," for in that the swelling is characteristic. Nor is it probable that twenty Cows could be attacked with a deadly cholic at one time, unless they were poisoned. Some highly deleterious quality must have existed in the food eaten by them, and on this point any further information from Columbia, would be highly acceptable, and would prove most useful to the agricultural community. If Guinea Corn is poisonous in the state described, or in any other stage of its growth, it is essential that a knowledge of the

fact should be spread far and wide, for we believe the cultivation of this grain has been strongly recommended, and recently introduced on many plantations.

That plants, wholesome and nutritious in one state, are poisonous in another, is well known. The Capava, of tropical climates, is an instance of this. But the following fact, which occurred in our own state, and which we give on the authority of Judge Bee's eldest son, will surprize many of our readers, as much as it did us, when we first heard it.

The Judge knowing that Castor Oil was a safe and pleasant cathartic for the human species, and believing justly that the same medicines used for man would operate effectually on horses, (emetics excepted) if given in sufficient quantities, determined to purge his horses with this oil.—Instead of giving it, however, in the usual shape, he administered the *berries of the Palma Christi.* The dose proved fatal to three carriage horses, to which it was given, and killed them in a few hours.

ART. V.—*Useful Agricultural Hints, by a Correspondent.*

To the EDITOR of the "SOUTHERN AGRICULTURIST."

1. In an Editorial note to the article, *Cochineal*, in your July number, you observe, that "you do not recollect ever to have seen them at any other place than Haddrell's Point, and they have long since disappeared from that spot."—They are very common on the sea islands, south of Charleston. They thrive best on the sea side of these islands—are enveloped in a white, silky cobweb, which is attached to the common Prickly Pear leaf. Should you wish a specimen of them, they can be easily procured and forwarded to you.*

2. The birds which infest rice, corn, and other grain fields, can be easily taken in flocks, by a spring net, about fifteen feet by twenty, made of very light twine. The

* They can be found on Sullivan's Island.—*Ed. of So. Ag.*

ground is previously baited three or four days, in the neighbourhood of a tree, or some other spot where they are observed to frequent. My manager is in the habit of taking them by this means, even at the present season, when wild food is in such abundance, and the flocks are shy and small. But if this trap were used in November, December, and January, when the flocks are increased considerably, and the wild-grain food scarce, the breed of black birds, &c. might be considerably diminished in a few years. They are, in the planting season, as annoying as certain unconstitutional measures are to the planting and commercial interests. The bird-minder is desired, in the spring season, to shoot principally the hen bird, this *tariffys*, or interrupts propagation, and the gentlemen are induced to go sparking elsewhere, perhaps in your next neighbours field, where there may be better security and a greater redundancy of sweet-hearts.

3. This is the season for curing *Potatoe Vines*—they make as good hay when cured, although of a dark brown colour, as northern hay, and when safely housed, are often preferred by horses and cattle. The hand which digs daily root Potatoes, for the labourers, first strips the vines off with his hoe, they are then carted home and placed on the fences about the buildings, provided they are secure from cattle, &c. They can also be cured on enclosed clean dry ground, or in the potatoe field, on poles resting on *crotches*. They should be shook three or four times throughout the day, to hasten the curing, and to divest them of sand. Two dry days will cure them. A shower of rain, or dew, will not injure them materially, unless they are sufficiently dry to house. Slip vines are cured in the same way, but on account of the suddenness and quantity to be gathered, and short days in the fall, they are cut and rolled with the hoe into small bundles, by those who strip the vines, and are so placed as not to interfere with the gathering of the potatoes, or to be liable to be covered with the dirt. In this state they can remain for several days without injury, until the potatoe crop is secured; but the sooner they are opened, shook, turned and exposed, and by these means dried, upon the old maxim, "make hay while the sun shines," the better. They are then wagoned home with oxen, and put away in large ricks, which must be thatched with Palmetto, or any grass that will prevent the wind from exposing the top to

the effects of rain. This would destroy the whole; like all other fodder, the house will be the best security.

A CLODHOPPER.

September, 1828.

Note, by the EDITOR.

We are really obliged, and personally too, for the valuable hints of our correspondent, and immediately gave orders, in our own farming concerns, for saving our vines in the way pointed out. The information never could have come at a better time.

If the promises of many of our citizens are to be kept, Carolina hay will be much wanted in Charleston. Those who have hitherto made hay in quantities, and used it at home, may be enabled hereafter to save it for sale, by curing the potatoe vines, as directed by our correspondent. The subject of fodder induces us earnestly to recommend to every planter near Charleston, to secure their hay lofts or houses, by good locks. The quantity of fodder stolen from the neighbouring plantations, and even from those at a great distance, on the rivers, to supply the town, is very great. Is it necessary to say to our numerous readers, that property, of every description, to a great amount, is annually pilfered and disposed of in the same way? If these observations should meet the eye of any independent member of our Council, we would point out Gadsden's wharf as being notorious as a landing place of stolen property, runaway negroes, &c. and for depredations of fire-wood, hay, blades, &c. We fear there are few instances on record *of our police itself*, having detected and followed up, by the punishment of the offenders, petty depredations of this kind; and yet they are daily—nay hourly committed! *Many of the offenders are publicly known*, and may easily be detected in the very fact.

ART. VI.—*Queries on the Culture of Rice; by* WILLIAM WASHINGTON, *with Answers by* T. F. GODDARD.

(Concluded from page 458.)

Georgetown, October 13th, 1827.

Dear Sir,—Your favour of the 27th July came duly to hand, and I should have answered it ere this, but circumstances have prevented. The object of your inquiries appears to be, to arrive at the best mode of cultivating Rice, on which subject planters differ, I shall answer your interrogatories, to the best of my experience, which is comparatively small; I therefore give an opinion with more reluctance, having cultivated Cotton and Corn, until within a few years past. I have, however, been pretty successful in the cultivation of Rice; suffice it to say, that it would afford me pleasure, to learn that your interest had in any way been promoted, by the present communication.

1st. What preparation do you give your land before you begin to plant?

Ans. Let your trunks and banks be made as tight as practicable, your land well drained and then turned deeply, with the hoe or plough; the latter I use principally, and prefer. I prefer, on old land, that the stubble should be turned in, and that as early as convenient after harvest.

2d. When do you begin to plant?

Ans. I should commence planting about the latter part of March, not that I think the Rice better than that planted later, but the reverse; it sometimes, from the cool weather, comes up badly, and grows badly, while that planted later, after the weather sets in warm, comes up, and grows infinitely better. There is this thing to be recollected, where one plants largely to the hand, it is absolutely necessary to commence early, so as to get through in due season. I work strong handed, and my reason for commencing early is, that the birds which make their appearance in the spring, are not so troublesome as they are upon Rice planted later in the season. There is another reason, that early planted Rice is not apt to be so troubled with Rice birds in the fall, which are sometimes very destructive. My last and ostensible reason is this, that by planting early there can be

such a time allowed, between your planting, that the harvest will be much better, not having the whole crop, as it were, upon your hands at one time; in such case the waste, of course, must be great. This, I think, an important consideration.

3d. Do you select your seed, and how do you know the best seed? Do you prefer seed from the north or south, and how often do you change your seed?

Ans. I select my Seed Rice from that part of my crop most free from volunteer—that you can ascertain by rubbing off the hull of a handfull or two, which will give you at once, the quantity of red Rice.. Where there is not more than three grains of volunteer to the hundred, I should call it very fine seed. I think there is an advantage in changing seed occasionally, even from one soil to another, but should be governed principally in changing my seed, from the proportion of red it has; whenever it becomes polluted, I, of course, would change my seed The seed I plant I procure in this neighbourhood, I am, therefore, unable to say whether seed from the north or south is best.

4th. How many rows to the task, or quarter of an acre? How many bushels of seed to the acre?

Ans. I plant fourteen inches apart, which will give you about ninety rows to the quarter of an acre. The quantity of seed used for an acre of land, is from two bushels to two and a peck; I plant the latter quantity.

5th. Do you scatter in the trenches, or, as it is technically called, string plant?

Ans. I string plant, and for this reason, where the seed is much scattered in the trenches, it is liable to be cut in hoeing, and it is more difficult to pick out the grass.

6th. Do you point flow, and if so, assign the reasons?

Ans. I point flow my Rice, if I cover with earth, as is usual, but when I plant without covering with earth, the water is put on, and kept such a time as to answer for both the sprout and point water. I would assign the following reasons for the point flow, to wit: that it destroys the first growth of grass, and the Rice is put out of the way of birds, and it prevents worms, which sometimes takes Rice in the young state.

7th. How many times do you hoe, before you put on the water? How long do you keep on the water?

Ans. I should always hoe twice, if I could, before I put on what is called the long water. I keep on the water from twelve to fifteen days, according to circumstances.

8th. If in grass, would you put on the water or not?—What do you call a good crop to the acre, or to the hand?

Ans. I should never put water on grassy Rice, if I could avoid it, but would put it on before it became so; but if I had grassy Rice, and I could not give it work, I would put on the water so as at least to check the growth, until I could work it. I call fifty bushels a good crop to the acre, or twelve and half barrels to the hand.

9th. Have you ever ploughed your land while the crop was growing, or do you object to it, and why?

Ans. I never have ploughed my Rice, nor do I think it can be done without injury, planted at no greater distance than above stated.

10th. Do you keep your land dry all the winter, or do you flow it?

Ans. The first thing I do after I get my fields picked, or gleaned, as it is termed, I put on the water, while the weather is yet warm, so as to sprout what Rice there may have been wasted in the harvest. Then it is to be dried for turning, after which, I would flow again, as the sediment from the water is an advantage to the land. In due season the water must be taken off, to dry the land for planting, when you turn in, either with the hoes or harrow, as you may prefer, to mash and prepare for trenching. In trenching, I use the trenching hoe and plough. The plough I like on account of lessening labour, and the facility it gives in planting.

11th. Have you ever used salt, or brackish water, and what has been the result? Have you ever used lime on your land, and how do you apply it?

Ans. I have no experience in the use of salt or brackish water, but I certainly would use brackish water, if I had a crop suffering for water, and could get no other, using the precaution to change it often, and flow deep. I am not aware of the good effects which might result from the use of lime, never having tried it.

12th. How do you know the best time to cut Rice, and what is the task of a labourer in harvest?

Ans. Those acquainted with Rice, can tell from the general appearance, and from examining it when it is fit to

cut, but I know of no better criterion to go by, than when the milk is hard in the bottom grains. Rice cut at that time, will stand pounding much better than when it is suffered to get too ripe. The task of a prime labourer, in harvest, is to cut a half acre; when Rice is to be taken in, the task is to cut a quarter of an acre, and carry the same quantity to the yard.

13th. Is there any peculiarity in your preparation of Rice for market?

Ans. The gentleman whom I have in my employ gives a good deal of his attention to the Mill; I also give it a good deal of attention, it being contiguous to me. My Mill I endeavour to keep in good order; I have a very fine pair of Mill-Stones, which I think is a very important part in the preparation of Rice, to be well ground; and I have had a horizontal bush screen made, in addition to the one I had, which gives a very fine polish to the Rice. I know of no other peculiarity in the preparation for market.

14th. Have you ever cultivated Guinea Corn, as a provision crop, and if so, what do you think of it?

Ans. I never have planted the Guinea Corn, as a provision crop; I, therefore, have no experience as to the production of it.

15th. Have you ever practiced a succession or rotation of crops, and if so, which do you most approve of?

Ans. I never have tried a rotation of crops on my Rice lands; I am, therefore, unprepared to say what would likely succeed best. I have no doubt, however, that either Corn or Cotton, could we cultivated to advantage on it, but being adapted to Rice, my impression is, that it pays better in that culture than any other.

16th. Should the river or creek, upon which your lands are situated, turn salt, from great drought, what mode of attendance would you pursue? Would you take in water before it did turn salt, at a time when the Rice was not in actual want, or would you let the water by? Do you ever hoe your Rice while your fields are filled with water?

Ans. As stated before, I have no experience in salt water, but if allowed to give the opinion of inexperience, I should say, take in water previously to its becoming salt, notwithstanding the Rice may not be in actual need; on the contrary, if, from any circumstances, I had been prevented from taking it on previously to its becoming salt, I would keep the

land as dry as possible, and stirred with the hoe as often as practicable, until perchance the rainy season should set in, when I would be enabled to get fresh water. I am a strong advocate for the land to be dry, when I hoe it, if it is to be of any service to the Rice, or to kill the grass; I therefore never hoe when my Rice is flowed, excepting on the hill spots, which cannot be flowed to advantage. After the Rice is laid by, we slack the water and pick the grass out, when the water is raised on it again.

I had a very early harvest the last season, and having a favourable opportunity, I determined to try the experiment of a second crop. I accordingly requested the gentleman who had the management of my plantation, to put on the water as soon as the field was gleaned, which was accordingly done. The fall was favourable for it, but there was, notwithstanding, a great deal of light Rice, in consequence of having frost before it matured, but there was some very good Rice from it. I do not know that the labour was well recompensed; it was taken in, however, after the last of the crop had been secured.

I cannot dismiss the subject without a few remarks, which may not be out of season. There are very few gentlemen of my acquaintance, owning plantations, who remain on them the season through, either from the effects of climate, or other causes; consequently, their business must be entrusted to an agent. Notwithstanding, in some instances, the planter is so contiguously situated to his plantation, as to visit it during the summer, thereby he is enabled to give any direction he may deem proper, while the crop is growing, yet there are circumstances occurring on a plantation, that require daily attention; and that is the reason I think it to the interest of every planter to have an overseer that he can confide in, for our interest greatly depends upon his attention and good management, both as it regards the crop, and, which is more important, the care taken of, and the comforts rendered our people. With these remarks, I leave the subject for your consideration.

I am your's, respectfully,

THOMAS F. GODDARD.

PART II.

SELECTIONS.

ART. I.—*On the good Effects of protecting the Stems of Fruit Trees; by* WILLIAM STOWE, *Esq. Surgeon, Buckingham.*

[FROM THE GARDENER'S MAGAZINE.]

Sir,—The indefatigable and scientific president of the Horticultural Society, in the sixth volume of its Transactions, (*G. Mag.* vol. i. p. 424.) has stated, that many circumstances had come under his observation which led him to believe, that when great part of the well organized blossoms of fruit trees became abortive, the failure might be attributed to some previous check which the motion and operation of the vital fluid of the tree had sustained, from the effects of frosts in the early part of spring. Among many others he instances the *very* luxuriant growth of a common Chinese rose (Rósa índica) in his own garden, the *stem* of which had been protected by an entwinement of Irish ivy. Taking up this idea, I last April, just as the blossom was about to expand, had the trunk and larger branches of an apple tree in my garden (Wyker pippin) eveloped with hay bands, leaving two other trees of the pippin kind, within a few yards of the one on which the experiment was tried, to take their chance without protection. The nights of the latter part of April, and of the first ten days of May were remarkably cold; a self-registering thermometer of my own, and one on Six's principle under the observation of Mr. James Brown, gardener to the Duke of Buckingham at Stowe, indicating, on the night of April 30th, a temperature 15° below freezing. This degree of cold proved fatal to the whole of the blossoms of one of the unprotected trees, and nearly so to the other—about a dozen of apples being the total of its produce. But the protected tree seemed to be proof against the effect of frost; and I do not exagger-

ate when I say that the crop was beyond all former precedent, and was the admiration of all who saw it, many of the branches being literally loaded like ropes of onions.

I am not such an advocate of the *post hoc propter hoc* maxim, as to think that there may be no fallacy in the conclusion, that the produce was the result of protection, but I am so satisfied of the correctness of the principle, that I shall in the ensuing spring give the stems of my peach and nectarine trees the benefit of a similar clothing. I have merely related the experiment to induce others to repeat it; and as it can be done with very little trouble and no expense, I trust I shall be excused both by your readers and yourself for trespassing on your pages, even if, on repetition, it should be less successful than in the first instance. I am, Sir, your's, &c.

WM. STOWE.

Buckingham, Nov. 21st, 1826.

Note, by the EDITOR.

This will appear strange doctrine to many of our planters, that when the fruit crop fails, it has been owing to a check in the circulation of the sap, and not to any injury done either to the blossoms or young fruit, will not readily be believed by any; but the experiment here stated, appears to establish that fact, as far as *one* experiment can do so. A tree was selected to make the trial on, leaving one on each side. These were left equally exposed, as to their blossoms and buds, and only the middle one had the stem and large branches protected, and this tree alone bore a crop. Those who delight in having fine fruit, and who are so often disappointed in this variable climate of ours, ought certainly to make a trial of this simple method of obtaining them.—The only one we know of, as practiced among us, is to remove the earth from around the roots of the trees, and to leave them exposed to all the rigour of the winter. This is done with a view of preventing them from blossoming early in the spring, and the earth is not returned until late in the season. This may destroy many of the worms around the roots of the trees, by exposing them and their eggs to the frosts of winter; but we doubt very much, whether the exposing the roots of fruit trees, be not productive of more in-

jury than good, and we doubt very much whether the trees are retarded in the time of their blossoming. It is admitted by all Phytologists that the sap is taken in at the extremities of the roots; that it ascends through the wood; is prepared by the leaves, and descends by the bark. Now the uncovering of a few feet of the large roots cannot prevent the extremities from receiving their food as soon as the season is sufficiently advanced to excite the vital principle within them, nor can it affect the upward flow of the sap, already within the body of the tree, the first notice of which is given, in most fruit trees, by the expansion of their blossoms. Of what use then is the exposing of the main roots, and on what principle do the advocates of this system, pretend to justify it. The doing of violence to nature, will never prove a benefit, and this exposure must be considered in such light. But our limits will not permit us to enter into a more elaborate discussion of the subject, and we would recommend to such as advocate the uncovering of the roots, to institute a series of experiments, and let trees which have been notted for blossoming, at the same time be experimented on. Let No. 1. be uncovered during this winter, and the difference in the time of blossoming beween No. 1. and No. 2. be carefully noted down; the next winter let No. 2. be uncovered, and No. 1. remain undisturbed. If, after a few experiments conducted as stated above, it shall be found that those trees which had their roots exposed, invariably blossomed later, and received no injury, we, of course, must yield our opinion. We rather suppose, however, that on trial, it will be found to be one of those practices which we have received from our forefathers, and which we have continued to follow, without ever examining into it. In England, their fruit trees are protected by woollen nets, which are hung from the walls, in front of the trees, and there secured, and although the meshes are large, yet they have been found to be sufficient protection against the effects of frosts. This is only applicable to wall trees, or rather we believe it has only thus been used, not having ever met with any notice of its being applied to standard trees. In Germany, some of the farmers use a band of straw, the one end of which is fastened to the upper part of the tree, and the other is immersed into a tub of water, and this is said to have the effect of protecting the tree. We have also seen it recommended, to scatter around

and under the tree, Gypsum, (or Plaster of Paris,) which the writer asserted protected the trees, by attracting the moisture from the branches to the ground. Those who are desirous can try either, or all of these. The nets have been found effectual, and have been used for some time, but there is not much likelihood that we shall soon make use of them; the two last are harmless, even should they not prove beneficial.

ART. II.—*On the Cultivation of the Strawberry; by Mr.* WILLIAM CURR, *of New-York. Read Feb.* 26, 1822, *to the President and Members of the Horticultural Society, of New-York.*

[FROM THE NEW-YORK FARMER.]

Gentlemen,—I take the liberty to lay before you a short sketch of the method practiced by me in cultivating the Fragaria, or Strawberry plant, together with a few observations which I consider will be found of advantage to the cultivator of that excellent fruit.

The patch on which I had my Strawberries, had been under the same plant for several years. For the month of September, 1819, I laid on about five inches thick of well rotted manure, which I dug down with the old vines. I then set out plants of the Hudson kind of Strawberry, at the distance of sixteen inches each way, taking care to have them in line the long way of the ground. In the month of November I covered the plants with a thin coat of long litter, which I took off in the beginning of April, and pointed the ground with a spade, and raked it smooth. The ground was kept clean by hoeing till the fruit began to form. I then took short grass, cut from the walks, and spread between and under the vines, which had the effect to keep the fruit clean, the weeds down, and kept the scorching drought from penetrating into the roots of the plants.

As soon as the fruit season was past, I pointed in the grass between the bed. In September, 1820, I cut out all the superfluous runners, and dressed the bed, and in the month of November covered as before.

On the first of March, of last year, 1821, I took the covering from a part of the patch and replaced it with one inch of straw, which I burned off, as directed by Dr. Miller. I then gave a slight hoeing and raking. At this time there was hardly the least trace of vines left on the ground; but in eight or ten days the leaves began to make their appearance. On the 22d March, I uncovered another part of the patch, a part of which I burned with straw as before, and the other part with a parcel of dry leaves, which I laid on two inches thick. The remainder of the patch I uncovered in the beginning of April, and dressed it in the usual way.

The first burned part continued to keep more forward than the others, and showed flowers eight days sooner than the unburned part of the patch. The unburned grew less rapidly, and was considerably less productive of fruit. That part burned with leaves was the most luxuriant in growth, the quantity of fruit nearly the same as those burned with straw.

The burning has this good effect, that it keeps the ground more clean of weeds, and will doubtless kill a great many insects and their eggs; besides, it clears the vines from all decayed leaves and hardened bark, gathering round the body of the plant; and by that means allows the free expansion of the leaves and flowers.

I am of opinion that leaves, when dry, will answer the purpose of burning equally well with straw, and their ashes prove a good manure.

I shall now give a few observations concerning the selecting of proper plants for planting. A great deal lies in choosing proper plants: for if they are taken promiscuously, the greater part will prove barren, producing plenty of flowers, but no fruit. Those, when examined, will be found to want the female organs of generation; that is, they will have no abundance of stamina, but few or no styles; so that it often happens among those barren plants, that some of them have a part of an imperfect fruit formed, which sometimes ripens. Plants ought, therefore, never to be taken out of old neglected beds, which have been allowed to spread and run into a multitude of suckers, nor from any plants which do not produce plenty of fruit. Those suckers which stand nearest the old plant, should always be selected in preference to those produced from the trailing stalks, at a distance from the fruit bearing plants.

There has been some kind of strawberries greatly improved by seed selected from the largest and fairest fruit. In this case the seed should be sown as soon as possible after the fruit is eaten. The best way is to sow the seed in pots or boxes, placed in the shade.

Should some of the members of this Society put this in practice, the result might be of general advantage, by improving the different sorts of this delicious fruit.

WILLIAM CURR.

Note, by the EDITOR.

We have here a detailed statement of an experiment made in the neighbourhood of New-York, in consequence of the communication made by Dr. Miller, to the New-York Horticultural Society (given in our last number, page 468). This letter will be read with some interest, as it tends to confirm what was there stated. We observe that he burned a part of his beds, and left a part; and that that part which was burned first, "continued to keep more forward than the others, and showed flowers eight days sooner than the unburned part of the patch." This certainly is much in favour of continuing the practice. Those who are disposed to make a trial, must recollect that this was done in the spring of the year, in New-York; and that it must be done much earlier in these States. We think that the first burning should take place as soon as vegetation receives a check by the cold weather, and the others can be continued during the winter, to have successional crops. Dr. Miller mentions that his friend burned a part when they were beginning to blossom. This may be tried, but we think it rather late, and that the crop would be very small. We can, however, ascertain nothing without making experiments, and we recommend that a few plants be subjected to this trial.

ART. III.—*Of the Influence of Light on Vegetation; by* FOURCROY, "*on the Philosophy of Vegetation.*"

FROM LETTERS AND EXTRACTS ON AGRICULTURE.

It is a long established fact, that the solar light has an obvious and powerful influence on vegetation. All plants seem to seek for light, as they evidently lean or grow towards that side from which it shines. This may be observed where bulbous plants are reared on chimney-pieces, or similar situations, whence they uniformly bend towards the windows. It is likewise obvious in forests or thickets, where trees, growing close together, rise straight upwards in search of light; the more vigorous overstep the weaker, and, at length kill them; whereas trees growing singly, or at large intervals, spread out to considerable breadth.—Hence, when it is wanted to have timber being long and straight, the trees ought to be closely planted, and *vice versa.*

When growing plants are covered with wooden boxes, having a few fissures so as to admit air, they bend towards the cracks in search of light. Such as grow in vaults, subterraneous places, or mines, always stretch out towards the air-pits, and grow along the passages which admit any portion of light, however feeble.

All vegetation that takes place in the dark, is accompanied by phenomena, that clearly prove the powerful effects of light, from the marked difference between such as enjoy that influence, and those which are deprived of its operation; as is manifest in those weakly plants that happen to grow beneath stones, among thick tufts of moss in the subterraneous passages of mines, or when purposely reared in vaults or other dark places. In all such situations, vegetables acquire a weakly, soft, and aquetous texture; their stems and branches are slight, herbaceous, feeble, and almost devoid of taste, odour, or colour; their fibres, saturated with too much water, as if dropsical, never acquire a woody texture; their taste is always watery and insipid, and they never acquire any full aromatic odour or perfume. Such plants are termed *etiolated* or blanched.

Exactly similar effects are produced when the leaves of plants wrap up and cover each other from the light; whether this be in consequence of natural sheaths, or when the leaves are folded upon each other by art; as in lettuces,

succory, cardoons, and other plants, tied up by gardeners on purpose to blanch them; and in cabbages, savoys, and the like. In all these, the external leaves which enjoy the light, are perfectly green, while those within, naturally or artificially covered up or involved in darkness, are blanched or etiolated; they are thereby rendered white, soft, delicate, and tender, and lose the taste and flavour of the native plant in its green state, or retain these very slightly.

Such plants, on the contrary, as receive the most direct influence of light in the equatorial regions, abound in firm, hard, woody fibres, are highly coloured, strong tasted, and powerfully aromatic. Between the tropics is the native seat of hard woods, dark coloured, and often almost woody leaves, volatile oils, resins, camphor, aromatics, and spices; in short, all of the strongest tasted and most powerfully medicinal plants, and of all the most terrible vegetable poisons. This difference is strongly evinced in our temperate climes, by the difference between the qualities of such plants as grow in the open air, receiving the whole influence of the light; and in their artificial cultivation, where light is carefully kept from them, as already noticed.

The influence of light is even manifested by the effects of lamps upon growing vegetables, according to the curious experiments of Tessier at Paris, and of Humboldt at Berlin. By those of Humboldt, it would seem, that the presence of some other elastic fluids may, in part at least, make up for the absence of light, as will be noticed in the sequel. It is, however, certain, that, by sufficient multiplication of artificial light, the phenomena of vegetation dependent upon solar light, may be more or less nearly imitated.

The causes of those effects of light upon vegetation, are not hitherto accurately ascertained by actual experiment, at least, not sufficiently to remove all doubt. Some suppose, that the changes produced on growing vegetables by light, are, in consequence of that element, entering into actual combination with this substance. Others believe, that the light merely contributes to the decomposition of water and carbonic acid present in plants, thereby producing the fixation of the hydrogen from the water, and of the carbon from the carbonic acid, and the disengagement of oxygen from both, which flies off in the state of oxygen gas. In the sequel, substantial reasons will appear for considering the latter of these opinions to be most consonant to fact.

In whatever way it may operate, it is perfectly ascertained, that the following effects are produced on vegetables by light. 1. They have their temperature augmented. 2. Their power of absorption is increased. 3. The septic decomposition of their elements is resisted. 4. They acquire colour. 5. The production of oily, aromatic, and acrid substances or juices is promoted. 6. The disengagement of oxygen gas is occasioned. In general, their vegetative powers are rendered more active and vigorous.

ART. IV.—*Of the Influence of Water on Vegetation; by* FOURCROY, "*on the Philosophy of Vegetation.*

FROM LETTERS AND EXTRACTS ON AGRICULTURE.

The usefulness of water to vegetation is so obvious and striking, that most naturalists have considered it to be the *primum mobile* of growth in plants, and the most useful material which enters into their composition. This opinion has prevailed since the experiments of Van Helmont, Boyle, and Duhamel; in which trees were made to grow in pure water for several years; and confirmed by the experiments of Tillet, which prove, that the nature of the soils in which seeds germinate, is almost of no importance, and that they require hardly any thing besides water for their growth and nourishment. All the experiments of naturalists and husbandmen unite in proving the vast utility of water, and the superior importance over every other material, for promoting vegetation; the explanation of which fact has very much employed the attention of the learned.

To prove this principal influence, and vast usefulness of water on vegetation, to the accurate, but necessarily limited experiments of philosophers, the equally authentic and extensive experience of the fertility of moist situations, the rich production of irrigated meadows, and the superior productiveness of lands that are situated upon brooks and rivulets, over such as are dry and arid, may all be cited. To these may be added the astonishing fertility of Egypt, owing to the inundations of the Nile, justly considered by the natives as the gift of heaven. Thus, the experience of practical agriculture, and of the productions of different coun-

tries, afford incontestible proofs of the influence of water on vegetation; and these facts may be most usefully multiplied by further observation. We have a further confirmation of this interesting fact, in the industrious market-gardeners of Paris, who force the soil to give out uninterrupted and astonishingly abundant crops of vegetables, by continually fertilizing the ground, by means of vast quantities of water.

To explain the influence of water on vegetation, it is necessary to inquire into its manner of acting upon the various organs of plants. It certainly passes into their substance through their roots. When the roots of a withered, dry and shrivelled plant are placed in water, it recovers its freshness and vigour, and renews its vegetation. Coloured liquor perceptibly penetrates and rises up through the vessels of the young and white radical fibres, to which it communicates colour. Every tree or plant grows and passes through its vegetative functions, with more or less vigour, in proportion as its roots are less or more furnished with moisture. The water, absorbed by the roots, passes up through the stems into all parts of the plant. It partly exudes from the leaves, which return it to the atmosphere; and the more abundant the production of its transudation, in consequence of the heat and solvent power of the air, so much the greater is the absorption of water by the roots.

This germination, if not exclusively, is partly produced by means of water, is perfectly obvious. Seeds, before they can germinate, must necessarily absorb water; and for this purpose must be placed in moist earth, or some other wetted substance, or upon a moist surface of some kind. Every perfectly dry situation entirely prevents any degree of germination. It does not seem, however, that this process can be produced by the influence of water alone; or that seeds entirely immersed in water can germinate. It is even believed, that the seeds of aquatic plants require, in the first place, to rise to the surface of the water; whence some of them, after germination, sink to the bottom, that they may fix their roots in the mud. It requires to be considered whether water penetrates into the substance of vegetables only by the seeds during germination, and by the roots during the subsequent process of vegetation; or whether it may penetrate by other means?

Most inquirers into the phisiology of vegetation, have considered the leaves of plants as possessing absorbant pores

and vessels, by which they absorbed the water which separates from the atmosphere in form of dew; that this absorption took place chiefly in the night, and during misty or dewy weather, and might, in part at least, supply the place of absorption by the roots, when the ground was very dry. In support of this opinion, they cite the excellent observations of Bonnet, respecting the difference between the two surfaces of leaves; so marked, both in their structure and functions, that when the under surface is laid upon water they remain fresh, or even vegetate; whereas, if the upper surface is laid upon water, they shrivel and die, or at least continue fresh a much shorter time than in the other position. Hence, they conclude, that the under surface of leaves is absorbent, and inhales moisture; while the upper surface, on the contrary, exhales. But we do not perceive by what power the atmospherical moisture can thus be made to penetrate, or how it can be enabled, without pushing back the fluids contained in the vessels of the plant, to penetrate into the vessels already occupied by those fluids, without having recourse to the supposition of a vacuum, which is by no means proved.*

In whatever manner, or by whatever passage, water may insinuate into the vessels of vegetables, it is at least certain, that it continually passes through them, penetrating into all their organs, and to every point of their substance, and is perpetually renewed; that this circulation and renewal are necessary to the life of vegetables, as the vigour and quickness of vegetation are nearly proportional to the quantities of water absorbed. Since, by the introduction of water into vegetables, its presence into their vessels, and its circulation or passage through them, plants evidently grow, it remains to inquire into what way water is useful for their nutrition; and we proceed to state, how far this has hitherto been ascertained by the present state of scientific discovery.

Water, which filtrates through the roots of plants, carries along with it every thing that it finds in the soil, and which it is capable of dissolving. In the first point of consideration, water becomes the vehicle for carrying into the sub-

* The fact, notwithstanding this reasoning, is certain, A man in a warm bath, though his vessels are all full, most assuredly gives weight. In obstructing deglutition, people have been actually nourished by baths of strong broths.

stance or organs of plants, every alimentary substance that is contained in the earth or soil in which they grow.

It has, of late, been thoroughly proved, that water, impregnated with certain soluble gases, is greatly more conducive to vegetation, than water deprived of air, by boiling or other means. Hence, snow water, which re-absorbs the air it has lost by congelation, during its gradual meeting, and which sinks, thus aerated, into the ground, to water the roots of plants, produces such quick and remarkable vegetation in early spring. Hence, likewise, the water, from gentle showers, having acquired a high saturation of air in descending through the atmosphere, equally covering and gradually penetrating the soils, very actively contributes to the growth of plants. Hence vegetation is much less promoted by water from pit-wells or cisterns, than by water which has run for some distance above ground, so as to be saturated with air.

The different substances in the soil, which are susceptible of contributing to vegetative nourishment, being in a dry or solid state, are incapable of penetrating by the roots into the organs of plants, unless by the agency of water either suspending those substances in a state of extremely minute division, or by true chemical solution, and thus carrying the particles of those various matters within the substance of plants, so as to serve for their nourishment. Hence, in proportion to the quantity of water which is supplied to, and absorbed by plants, their nourishment from those other matters which it conveys must be the more abundant. It will be afterwards seen, that even siliceous earth, is carried, by means of water, into the substance of plants, as that element is found in the analysis of vegetables, after the separation of the soluble, saline, inflammable, and other materials of their composition.

In thus entering perpetually into the vessels of vegetables, to which it carries the various substances necessary for augmenting their component materials, and causing their growth and increase, it is obvious that water fills, distends, swells, and lengthens those vessels or canals; supporting and preserving the cellular and vascular plexus of their structure, by a proper distension of their parts. Hence, in long droughts, or when burnt up by scorching winds, or the too fierce action of the sun's rays, plants become withered or faded, their leaves supple, hanging down and ready to fall off,

and threatened with speedy death; but, on the supply of sufficient moisture, they quickly revive, recover their erect posture and healthy appearance, and resume their growth with more vigour than before.

Water obviously enters undecomposed into the substance of plants, and constitutes one of their constituent elements, forming the basis of the sap, and of all the juices which they contain, and serving to hold in solution their acids, salts, attractive matters, mucilages, and other substances, to be afterwards enumerated. So far only was the use of water known to the older chemists, who even conceived it to exist in a solid state in several vegetable productions.—But modern chemical science has pointed out still more extensive uses of water in the economy of growing vegetables.

From the observations of Lavoisier and Bathollet, and the experiments of Ingenhousz, in which leaves, immersed in water and exposed to the sun, were found to give out oxygen gas, it has been believed that water was decomposed in the vessels of plants, and particularly in those of their leaves; that this decomposition was assisted by the influence of light, especially by that of the sun; and that, by this decomposition, the hydrogen of the water was fixed in the plants, contributing to the formation of their oils, extractive matters, and colouring substances; while a part of its oxygen was fixed, at the same time, to constitute their various oxyds, as sugar, mucus, fecula, and others, and their peculiar acids: the greater portion of this oxygen of the water, after separation from its hydrogen, being dissolved by the caloric of the light, assumes the form of gas or air, and escapes, often with considerable rapidity, from the surface of the plants, more especially of their leaves.

By this discovery of the decomposition of water in the leaves of vegetables, through the influence of the solar rays, the great usefulness of water in vegetable economy, and a source of the two principal component elements of vegetable substances, are ascertained. We thus learn how the salubrious atmosphere is perpetually renewed by the mechanism of vegetation, which restores to it, by what may be termed decombustion, the oxygen of which it is continually deprived by many causes of an opposite nature. By the knowledge of these simple phenomena, we are enabled to ex-

plain a number of facts and complicated circumstances, which were formerly unknown, or at least the connexion of which with physical science was not understood.

Art. V.—*On the Culture of Hemp.*

FROM THE SOUTHERN PATRIOT.

In republishing, from a Baltimore paper, the improved method of cleaning Hemp, by boiling with soft soap as practiced by Mr. Brealle, I added some observations recommending the culture of it to our Planters, as destructive to all insects, and therefore capable of arresting the progress of the Cutworm, Catterpillar, and possibly the Rot, if that be occasioned by an insect—likewise as a resource in case of the failure of either of the Rice or Cotton crops, which is occasionally ascertained with regard to both, in July, when too late to replant any thing else but Hemp, a hardy plant of rapid growth, which in eight or ten weeks from the planting, will afford a crop of from 2 to $300 per hand, exclusive of provisions, as it requires little or no weeding and hoeing.

Your Correspondent, "A Cotton Planter," appears to have noticed those observations, and inquires concerning the mode of planting Hemp. I will endeavour to satisfy him—the seed should be of the last year's growth, as all oily seeds become very uncertain in their vegetation after one year; the quantity required is from one bushel and a half to two bushels per acre, provided it be drilled; if sown broad cast, twice that quantity of seed is requisite. Drilling, generally, should be preferred. To be profitable, the soil should be River Swamp, reclaimed land, well drained, or well manured loamy high land. A wet soil is not required, as the plant bears drought wonderfully; but it will grow on any land that will afford a crop of any other description. The ground should be well ploughed and harrowed, then laid out in narrow drills, the seed dropped and lightly covered with a bush or rake; no other attention need be paid to the crop except driving off the birds carefully until it has taken root. Birds of all kinds are very fond of

the seed. The plants being male and female, they ripen at different periods, and if it be an object to preserve the seed they are likewise gathered at different times. The males arrive first at maturity, and this is ascertained by the tops turning yellow, the roots white, and the blossoms falling. They should be pulled up by the roots or cut near the ground, as soon as this change is evident. The female plants having thus obtained more room, grow larger and ripen their seeds a few weeks after; they are then also pulled, and the seeds, when dry, separated by a kind of coarse comb, or thrashed, or chopped off from the plant. The bark of the female is at this time much coarser and stronger than that of the male, and is used particularly for cordage. But it is not necessary for the females to grow so large (if the seed is not wanted,) if the Hemp is wanted for weaving instead of cordage. If an early frost or freshet should prevent the seed from ripening, the female Hemp is still good and may be harvested at any time after the male, or even with it—the quantity would not be so great, but the quality finer, by being pulled or cut before the seed is ripe. So with Flax; if left to seed, it is used only for coarser purposes; all the Flax used for linen is cut before it is ripe.

In Swamp fields, where a crop has been destroyed by a freshet, the ground is left very soft and spungy, in consequence of the previous working. I therefore presume that nothing more is required than to level the Corn or Cotton rows, and sow the seed broad cast, for a saving of time on such occasions is all important.

In the piece which you published on the 25th April last, I proposed that the Cotton Planter should surround two or three tasks in different parts of his field, with a drill of Hemp, for the purpose of testing the alleged effects against insects—of preserving a sufficient supply of seed from year to year—of familiarizing himself without risk to the culture of Hemp, and of enabling him, without loss, to try Mr. Brealle's method of curing Hemp. The large boilers used on almost every plantation for cleaning hogs &c. with two or three rum hogsheads, which cost but one dollar each, or with troughs which could be made by any plantation carpenter, on the plan of Indigo vats, may enable the Planter to judge how far this plan would be advantageous when aided by the apparatus recommended in that publication.

A SOUTH-CAROLINIAN.

PART III.

MISCELLANEOUS AGRICULTURAL ITEMS.

DOMESTIC.

SOUTH-CAROLINA AGRICULTURAL SOCIETY.

Anniversary Meeting, 19th August, 1828.

At the Anniversary Meeting of this Society, held on the 19th of August, the following gentlemen were elected officers for the ensuing year, viz:—

JOHN HUME, *President.*
HUGH ROSE, *Vice-President.*
C. E. ROWAND, *Secretary and Treasurer.*
W. WASHINGTON, *Corresponding Secretary.*
J. D. LEGARE, *Librarian.*
C. C. PINCKNEY, *Orator for the next Anniversary.*

THE FOLLOWING COMMITTEES WERE APPOINTED, VIZ.:

On Arrangements and Premiums.

Dr. William Read, E. Horry, J. D. Legare, J. Ferguson, J. Cuthbert, W. Washington, J. Harleston, and the Officers of the Society.

For Importing Seeds, &c.

E. Horry, F. D. Quash, T. H. Deas, W. M. Parker, J. S. Ashe.

On Communications.

W. Washington, W E. Morris, J. Huger, J. H. Read, E. Horry.

Committee on Importing Implements of Husbandry.

C. E. Rowand, W. Washington, C. C. Pinckney, J. Rose.

Extract from the Minutes,

J. H. READ, *Secretary, P. T.*

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Tuesday, October 21, 1828.

At a Meeting of the Agricultural Society of South-Carolina, on motion—

"*Resolved*, That a Committee, consisting of James Gregorie, Charles E. Rowand, (Treasurer of the Society) and Hugh Rose,

be appointed and authorized to receive communications from such of the Sugar Planters in this State, Georgia, or elsewhere, as may decide on sending to France for information on *the mode of preparing Sugar from the Beet.* Also, to receive and appropriate to that purpose, any funds transmitted to this Society by Planters interested in this important culture."

The object of the mover of this Resolution is to give the application for information on this subject as much importance as it can receive. When made by so respectable a body as the one which has now taken it up, and through the representation of the Government, our excellent Ambassador at Paris, it becomes a national concern, will receive attention, divested of all personally interested motives, and be more likely to be attended with success than if made by individuals, however respectable.

The expense, we are assured, will be but trifling, compared to the advantage which may be looked for—it may be one hundred dollars, perhaps two hundred, or a little more, but it must be provided for, and the necessary funds transmitted before hand to the Treasurer of the Society, Charles E. Rowand, Esq.

We recommend that a written description be sent for, fully detailing the process in all its parts; with a model or drawing of the boiling or refining house, as used on the Sugar farms, with all the implements used in it; and a sufficient quantity of the *Noir Animal, Albumen*, or any other material required in the process, sufficient to try several operations on different plantations.

If the method of preparing the *Noir Animal*, and *Albumen* are not secret, to get the *recipe* for this also.

Letters, on this interesting subject, may be addressed to the Chairman of the Committee, *Charleston.*

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The Gardenia, or Cape Jessamine, is an African plant, and a native of the Cape of Good-Hope. It was first brought into notice by Dr. Garden, formerly of Charleston, who transplanted it into South-Carolina. It is a most delightful, ornamental shrub, and has a blossom of great beauty and fragrance. It is now generally known in this country, and the object of this notice is not to describe it, but merely to give the most successful plan of propagating it. This has been found a difficult matter, and many persons have abandoned the attempt in consequence of frequent failures. The following has been found a successful plan. Pull from the shrub a branch about twelve inches long, without cutting it, at the time when it is in full blossom, and plant it in an inclined position, leaving a few leaves above the ground; water it every morning for a month, and it is very sure to take root. But to ensure success, with the least trouble, put ten or twelve cuttings into the same bed, and one watering will answer for all.—Some will take, and if more than are wanted there, they can be transplanted. Another and very pleasing mode is this: take a

branch with the full blossom on it, and put it into a vial of water, covering the whole stem. The flower will continue fresh for some time: after it falls off, there will appear, in the water, a small white fibre shooting from the lower end of the cutting, which will branch out into a fine root. Gradually fill the vial with vegetable earth, and when the new leaves of the plant appear, break the vial, and set out the plant where you wish it to grow. You will thus be sure to obtain a fine Gardenia.

There is one circumstance observable in relation to planting the cuttings of most Evergreens. It is this, that they take root better in the *Summer* than in the *Spring*. It is known to most persons, that in the Summer, during a dry season, vegetation almost ceases, and the leaves of plants begin to droop; and that immediately after the next rains, a new vegetation springs forth. In the time of these rains, and before this new vegetation appears, cuttings of Evergreens should be planted, and they will always take root.—The Nondescript (or Cherokee) Rose, which is one of our best hedging plants, hardly ever fails when set out at this season. Its cuttings more frequently fail in the Spring. It seems that the vegetation is then too slow, and the cutting becomes dry before it takes root; but during the heat and moisture of Summer, it avoids this evil, and at once expands unto life.

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New Species of Clover.—The Professor of Agriculture and Botany, in the University of Modena, (Italy,) strongly recommends a new species of clover that has not been cultivated in this country; namely, *Trifolium Incarnatum*, or *Crimson Clover*. He recommends this plant as the earliest of the trefoils; as the most useful for increasing forage; as requiring only one ploughing and harrowing to cover the seed; as peculiarly calculated for dry soils, even gravels; and as preferring the mountain to the plain. It is so hardy that it may be sown even in autumn, and it stands well severe frost. If sown in the spring, it will bring a good crop that year.—Some experiments have been tried with this plant in Berwickshire, which, in a great measure justify what has been urged in its favour. It would be of very great importance, if this species of clover would answer where the land will not produce the common red sort, from its having been so frequently repeated.—*London Magazine.*

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Botanical Curiosity.—In the last number of Edwards' Botanical Register, there is a figure of the fine new "Air Plant of China," long known to the Europeans by the drawings of the Chinese, and celebrated for the splendour of its flowers and the fragrance of its perfume, It has for some yeasr been cultivated in the stoves of this country—but no means could be discovered for making it flower, till a new method was

pursued by the gardener of his Royal Highness the Prince Leopold, at Claremont, which finally proved successful. Under this mode of treatment a branch of blossoms was produced, between two and three feet long—and composed of some hundreds of large, flowers, resplendent with scarlet and yellow. The plant has the remarkable property of living wholly upon air, and is suspended by the Chinese from the ceilings of their rooms, which are thus adorned by its beauty and perfumed by its fragrance.—*London Medical Gazette.*

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Easy method of propagating Fruit Trees.—Let your graft, which I shall call the mother graft, be put in a stock as thick as a man's thumb, and inserted in the usual manner, and as near the earth as convenient. The first year, if your graft take kindly to the stock, it will grow several feet; the second year it will grow to a good size for transplanting, and in the spring following, before the sap begins to run, take up the stock and graft, and replant it, say nine inches deeper than the juncture of the graft with the stock. The graft will soon take to growing, and will be fit (in the course of a year or two) for transplanting again, first having sawed off the graft from the stock, the graft having by this time a sufficient number of roots to support itself. Upon the future tree, the idea solely depends for success; but of this there cannot be a doubt, if the mode here prescribed be pursued. The pear, quince, cherry, and plum, are great scion yielders; and I believe the apple, our most generally useful fruit, might be made to produce in the same way, if the ground around were dug every three or four years. By this mode some hundreds and thousands of the most valuable kinds of fruit might be raised, and with the least possible trouble; for while the mother graft lives, all of its descendants would be of the improved kind. I have often wished the delightful pear tree of my garden, had been served in this manner. It now puts out hundreds of scions, all of which, if this mode had been adopted, could be planted as bearers, without any thing more being necessary.—*Delaware Gazette.*

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Hot Beds.—These are in general use in the northern parts of Europe, without which they could not enjoy so many of the products of warmer climates as they now do, nor could they have tables furnished with the several products of the garden, during the winter and spring months.

Made with Tanner's bark. This is preferable to that made with dung for all tender and exotic plants or fruits which require an even degree of warmth to be continued for several months. The manner of making them is as follows: Dig a trench three feet deep if the ground be dry; if wet, not above

six inches, and raised in proportion, so as to admit of the tan being laid three feet thick. The length must be proportioned to the frames intended to cover it. The trench should be bricked up round the sides to the height of three feet, and filled with tan, such as the tanners have lately drawn out of their vats. It should first be laid in a heap for a week or ten days, that the moisture may drain out of it, which, if detained in, will prevent its fermentation; then put it in the trench and beat it down gently with the spade without treading it, then put on the frame with the glasses, and in a fortnight it will begin to heat, at which time the pots of plants may be put in.

When made with horse manure it must be fresh from the stable, and both the long and short forked up in a heap for a week or fortnight, turning it over once or twice in that time, when it will be fit to use. Make the bed the size of the frame, and cover it with rich earth, from six to ten inches deep.—When the bed is too hot it may be cooled by making holes in the sides with a stake, which must be closed when the beds are of a proper temperature; if too cold, line the sides with fresh manure. Cucumbers thrive well when the heat of the mould is at fifty-six of the thermometer.

Besides tanner's bark and horse manure, hot beds are made with oak leaves, straw steeped in pond water two or three days, coal ashes, grass; and also grains of malt after brewing, thrown in a heap and watered, to make a ferment and heat.

Mushroom beds are made like the ridges of a house, composed of alternate layers of horse manure and earth, covered with litter; in the surface of these beds, when they have acquired a sufficient degree of heat, the seeds are planted.—*Gleanings in Husbandry.*